Peaceful Nuclear Cooperation

U.S. Support for NPT Article IV

UNITED STATES & ECUADOR

Through the International Atomic Energy Agency (IAEA), the United States contributes to the work of many countries using nuclear materials and technology for peaceful purposes. In recent years, U.S. support has focused on achieving tangible and lasting benefits in fields that are vital to human development, including agriculture, human health, water resource management, and human resource development. Since 2000, the IAEA has approved and funded $4,461,553, including $240,332 in 2013, under its Technical Cooperation (TC) program for projects in Ecuador.

In addition to the United States' longstanding support for the IAEA's activities to promote peaceful nuclear applications, at the 2010 NPT Review Conference, the United States announced a $100 million USD effort to expand this support over the next five years. The United States has pledged $50 million towards the IAEA's Peaceful Uses Initiative (PUI), focusing on human health, food security, water resource management, and nuclear power infrastructure development.

The United States views its support for peaceful uses of nuclear energy, to which all NPT Parties are entitled, as a critical part of its broader effort to strengthen the IAEA and the global nuclear nonproliferation regime. The U.S. has already designated over $22 million for IAEA projects benefitting over 120 countries, including Ecuador, for which funding was previously unavailable. The United States is working with partners to reach the $100 million goal, and welcomes Japan, the Republic of Korea, New Zealand, the Czech Republic, Hungary, Sweden, Australia, France, Indonesia, Brazil, Italy, the UK and Kazakhstan who have announced their own commitments to the PUI of over $12 million.

NUCLEAR ENERGY

For various reasons, many of the IAEA's Member States have expressed an interest in nuclear power to meet their energy needs. Ecuador is therefore participating in a regional TC project supported by the United States to strengthen national and regional infrastructures for the planning and development of nuclear power programs. The project will help ensure that participating Member States have a complete understanding of the range of issues and activities that must be addressed before implementing a nuclear power program, and also ensure that there is a mechanism by which joint studies and issues can be addressed efficiently.

Ecuador is also participating in a regional TC project supported by the United States to upgrade uranium exploration, exploitation, and yellowcake production techniques while causing the least possible adverse impact on the environment.

HUMAN HEALTH

Latin America faces a double burden today: on the one hand, under-nutrition, and on the other hand, obesity. Ecuador is therefore participating in a regional TC project supported by the United States to improve the capacity of key institutions to use nuclear techniques to address each extreme of malnutrition. These techniques include isotopic dilution with deuterium to assess body composition, as well as carbon-13 to measure fat and glucose oxidation. The project will improve the quality of programs in the region; contribute tools for the diagnosis and evaluation of micronutrient deficiencies, obesity and obesity-related chronic diseases; as well as allow the establishment of data for those programs, which will help in the identification of vulnerable groups, planning, and the prioritization of actions to be applied.

NUCLEAR SAFETY

Ecuador is currently participating in a regional TC project supported by the United States to improve the operational national regulatory infrastructure for safety and control of

1. *Power plant under construction. Credit: Kansai Electric Power Co.*
2. *2013 IAEA=Argonne training on quality assurance in radiotherapy. Credit: Argonne National Laboratory*
3. *Nuclear analytical techniques can evaluate how well food, fortified with essential nutrients and minerals, sustains the body's health and growth. Credit: IAEA*

radiation sources to ensure the protection of people and the environment against the adverse effects of ionizing radiation. The project will harmonize and streamline participating countries' national capabilities for regulatory control in compliance with international requirements and establish or develop a comprehensive national system for preparedness and response to radiological emergencies.

Human resource development is critical for Member States to be able to implement and sustain nuclear security, so Ecuador is also participating in a regional TC project supported by the United States to implement the component of the IAEA Nuclear Security Plan 2010-2013 which focuses on institutional capacity building, human resource development and educational programs. Strengthening nuclear security human resource development will contribute to sustained effective nuclear security worldwide.

AGRICULTURE

Ecuador is participating in a project, coordinated by the IAEA's Department of Nuclear Sciences and Applications and supported by the United States, to implement capacity building activities to improve food safety and quality through nuclear technology and networking. The project involves workshops, human resource training, and technology transfers, and aims to establish functional networks, raise awareness of food safety and conduct food safety gap analysis in selected countries.

HUMAN RESOURCES

To contribute to Member States' manpower development, the IAEA awards individual fellowships and organizes group training courses. Every year, numerous fellows and training course participants travel to the United States for training in various peaceful uses of nuclear technology and return to their home country to apply the lessons learned.

Since 2000, the United States has hosted several training courses that included Ecuadorian participants in the fields of nuclear security, quality assurance in radiotherapy, and groundwater hydrology. Training was also provided through the IAEA Fellowship Program to three Ecuadorians in the fields of radiation medicine and health, radiation metrology and dosimetry, and radiation protection.

Additionally, since 2000, thirty-eight U.S. experts have traveled to Ecuador to collaborate through various IAEA Technical Cooperation projects. Examples of some topics include physical protection, uranium deposits, human resources, introduction of nuclear power plants, safety reviews, and communication.

1. *IAEA helps countries safety condition and seal spent radioactive sources. Credit: Kirstie Hansen/IAEA*
2. *Radiotherapy center. Credit: Rodolfo Quevenco/IAEA*
3. *IAEA fellows receive training in plant breeding. Credit: Dean Calma/IAEA*